

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

Copy from

FILE 143

MONTHLY REPORT

for

M A Y,

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MONTHLY REPORT,

1920.

M A Y

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Original notes from Ch.Ran.Office, Skinner, Weather
Bureau, and Electrician, attached.

HMA
C.A.L.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

ICE OF THE SUPERINTENDENT

July
June 9, 1920.

Dear Sir:

The following is my report on conditions in the Yellowstone National Park, and on the operation of the park, for the month of ~~May~~ ^{June}, 1920:

GENERAL CONDITIONS:

The monthly mean temperature during ~~May~~ ^{June} was 43.4, which was 4 degrees below normal for ~~May~~ ^{June}. It was uniformly low and no unusual extremes occurred. The total precipitation was 2.84 inches, which was .93 inches greater than normal. There were 3.2 inches of snowfall, of which 2 inches fell the last day of the month, which was an unusual fall of snow for so late a date. This low temperature and excessive precipitation, did not tend to hasten an already belated spring, and the deep snows in the park did not melt sufficiently to make the roads passable without some of it being removed artificially.

This condition was discouraging, inasmuch as there existed a more pressing necessity than usual for an early opening of the roads, due to the fact that the concessioners had an enormous amount of work that must be accomplished in the upper park before the opening of the season on June 20th. Bookings indicate a heavy travel at the very beginning of the season, requiring that all concessioners be in readiness to take care of the public by June 20th. The Lake Hotel has not been open for two summers, and will, therefore, require more preliminary work than usual to make it ready for occupancy. The Lake Camp was even in worse condition for the same reason, and requires an immense amount of labor and freighting before it can be opened for tourists. C. A. Hamilton began the construction of a new store at Lake Outlet last fall, and worked as long as the weather would permit, but still has much to do before it can be used. George Whittaker has the same condition at the Canyon. Naturally, all of these concessioners were very anxious to have the roads opened early so they could get on the ground and make ready for the opening of the season.

These were some of the conditions that I found upon my return to the park on May 9th, after an absence in Washington, California and Hawaii, since last fall. Furthermore, the reports on the depth of snow between Mammoth Hot Springs and Norris, Canyon, and to the Lake Outlet, were anything but encouraging.

However, I had previously given instructions by letter to have everything lined up for a start to open the roads soon after my arrival, and as soon as practicable I had a conference with the concessioners interested, and we agreed upon a plan of cooperation in the matter of furnishing labor and supplies and apportioning the expenses incurred, in an attempt to break through to the Lake, via Norris and Canyon. I had sent forward instructions as to the building of a snowplow, to be placed in front of the 75-horse-power caterpillar tractor, from ideas that I had gathered from talking with the chief mechanic in Yosemite Park, and these instructions were carefully carried out and the snowplow mounted in front of the tractor by our chief mechanic, Bert Stinnett. There was much speculation as to whether the plow would work in deep snow, the majority being of the opinion that it would not. It did work, far better than anyone expected, as will be shown by the fact that it left Headquarters May 12th, reached Norris station, 20 miles from here, on May 20th at noon; Canyon, 11 miles further along, on May 24th, and to Lake Outlet, 15 miles further, on May 28th. Previous to the date the caterpillar started out, the big drift in Golden Gate was shoveled through by men furnished by the transportation and camps companies, but on the arrival of the big machine with the snowplow, on May 12th, it was found that the cut had not been made wide enough, and 30 men went out from Mammoth on May 13th and widened this cut and shoveled through another deep drift just beyond the Golden Gate. Beyond this point the big plow worked splendidly in snow up to 4 feet deep, but, of course, there was considerable shoveling to be done in the deeper drifts and in the cuts, and a crew of 12 men was constantly employed with the tractor. Bare and shallow places were found sometimes for a mile or two in extent, but the snow taken from the road was from 2 to 5 feet deep, with occasional drifts that ran much deeper.

There was some fear that the road would be badly washed from melting snow, if the snow was scraped out of the middle, but this did not prove true, especially where there was a little slope from the middle towards the outside, and the road dried surprisingly soon after the snow had been scraped away.

It was a wonderful sight to watch this powerful caterpillar, plowing its way through four feet of heavy snow, leaving a trail behind it eleven feet wide, with the snow banked up six to eight feet deep. It is also a novel experience to drive through this lane of snow for miles, with a comparatively dry road, with the huge snowbanks as high as the top of an ordinary automobile, and so close that they are within reach from the car. These, of course, are melting rapidly, but there will be some left over the high divides for the edification of the first tourists the latter part of this month. A set of photographs, showing the working of the plow and the snow conditions, is inclosed.

Travel.

Light cars were able to go over the roads soon after the snow was cleared away; general traffic was permitted with trucks to Norris and the West side of the park, where the snow had melted, on May 27th, and to the east side on the 28th. No work was required to open the road from West Yellowstone to Upper Geyser Basin, and with a little shoveling of a few drifts in Gibbon Canyon the whole west side was open on the 21st of May.

Cars were able to go over the road to Soda Butte Station on May 24th, the only bad drift having been shoveled out by the Cooke City mail contractor.

Twice during the month, namely from noon, May 12th, to noon, May 13th, and from the morning of May 24th to the morning of the 25th, the heavy truck traffic was stopped on the road between Headquarters and Gardiner, following very heavy storms which soaked the road and made it very soft.

Only 25 people entered the park during the month, as shown by inclosed report of the Chief Ranger. These entered at Gardiner for short trips to Mammoth. This number does not include those coming in to work for the Government and the concessioners.

Labor and Supply Market.

No difficulty has been had in securing as many laborers and mechanics as are wanted, at the same wages as were paid them last year, namely \$4 per day for common labor, and in proportion for mechanics.

Supplies are somewhat higher and scarce, especially potatoes, which are \$9 per cwt., and sugar, which seems to be constantly soaring. The high price of these staples makes the cost of subsistence of our laborers considerably higher than last season. Meals in our general mess at Mammoth cost an average of 46-1/5 cents each during May.

II. PERSONNEL:

Employees.

On May 1st there were 75 employees on duty under this office in the park, and on May 31st there were 94. Below is given a list of the number of employees serving under appointment, with a general statement of the kind of work performed by each class:

<u>No.</u>	<u>Class.</u>	<u>Kind of work performed.</u>
1	Asst. Engineer.	Office engineering and in charge of road repair crews in vicinity of Headquarters.
1	Blacksmith.	General blacksmith work. Shoeing draft animals and ranger saddle horses, and overhauling tools and equipment.
5	Clerks.	1 disbursing agent and purchasing clerk; 1 on orders, proposals and vouchers; 1 stenographer, files and revenues; 1 on payrolls and timekeeping; 1 on cost accounting and in charge of storehouse. At odd moments clerks assisted Ranger Skinner in indexing library, and tabulating notes on wild animals, birds, and other data relating to the establishment of the proposed museum.
1	Steward and Master of Transportation.	In charge of all transportation, including shops and garage. <i>storehouses</i>
3	Electricians.	1 in charge of power plant who operated and did necessary line work; 2 assistants who operated

<u>No.</u>	<u>Class.</u>	<u>Kind of work performed.</u>
		work on plumbing. <i>Installing water system at Canyon Camp</i>
1	Painter.	Renovated quarters at Headquarters and painting signs and equipment for guidance of public in park. <i>and place</i>
1	Telegraph Operator.	Sent and received Western Union telegrams; also put in regular shift as a switchboard operator, seven days a week.
1	Telephone Operator.	Operated telephone switchboard.
1	Laborer.	Miscellaneous work at Headquarters.
1	Chief Ranger.	In charge of ranger force.
3	Asst. Chief Rangers.	Assisting Chief Ranger. One in charge of southern district; 1 in charge of western district; and 1 with crew opening roads.
6	1st class park rangers.	In charge of ranger stations, on duty in Chief Ranger's office, patrol duty in the park protecting wild animals, and repairing game fences.
17	Park Rangers.	ditto. Also looking after horse herd.

The above employees were on duty as stated with the exception of when they were on leave of absence.

In addition to the regular employees listed above the following were employed temporarily:

	<u>On May 1st.</u>	<u>On May 31st.</u>
Mechanics	2	4
Teamsters	6	8
Laborers	5	14
Skilled laborers	<u>8</u>	<u>11</u>
	<u>21</u>	<u>37</u>

See attached page

*Noted
much 11/19/68
E.T. Seay*

Leaves of absence.

During May annual leaves of absence were granted as follows:

L. H. Mac Rae	Clerk	1st	to 1st (noon)	$\frac{1}{2}$ day
F. E. Bregdon	Asst. Electrician	1st	to 6th	5 days
C. O. Lauer	Clerk	3rd	to 3rd (noon)	$\frac{1}{2}$ day
E. T. Scoyen	Park Ranger	4th	to 8th	5 days
G. T. Dustman	Park Ranger	4th	to 6th	3 days
A. C. Neumann	Painter	8th	to 11th (noon)	2 $\frac{1}{2}$ days
A. R. Edwin	Clerk	12th	to 19th (noon)	6 $\frac{1}{2}$ days
Thomas Farrell	Watchman	16th	to 23rd	6 days
G. B. Dowing	Park Ranger	17th	to 30th	12 days
H. McFarland	Foreman	18th	to 25th	7 days
N. E. Samuel	Telg. Opr.	14th	to 31st	14 days
G. T. Dustman	Park Ranger	15th (noon)	to 15th	$\frac{1}{2}$ days
A. C. Neumann	Painter	22nd	to 22nd	1 day
B. C. Lacombe	Buffalo Keeper	26th	to 28th	3 days
A. B. Crim	Auto mechanic	21st	to 22nd	2 days
A. L. McLaughlin	Park Ranger	29th	to 31st	1 day
E. S. Bowman	Park Ranger	24th	to 31st	6 days
Ford Purdy	Park Ranger	23rd	to 31st	6 days

Appointments.

May 1st, Eliga S. Copenhagen, assistant buffalo keeper, \$900 per annum.

May 21st, Warren Hutchings, assistant buffalo keeper, \$960 per annum.

Separations.

May 31st, A. B. Crim, auto mechanic, \$120 per month. *By resignation*

III. WORK COMPLETED:

(a) Construction of Physical Improvements.

The rangers on duty in the vicinity of Gardiner Station constructed an excellent new corral of scrap lumber at the stable during their spare time.

A snow-plow, designed for use in clearing the roads of the park of snow in the spring, was built in our shops and attached to the 75-horse-power Holte Caterpillar Tractor, in service May

12 to 27. The shares of the plow are made of 3/4-inch plate steel, and are four feet in width, with a long curve. A wheel about eight inches in diameter was placed under the prow of the plow, which keeps the plow about four inches off of the surface of the road. The plow was then fastened to the tractor, with long rods running to the rear, giving it solid bracing.

A log crib, 5 feet high, 6½ feet wide, and 40 feet long, filled with rock, was constructed up-stream from the high steel bridge over the Gardiner River on the Tower Falls road, to divert the floating drift from the two east piers. The north pier of the two east piers was undermined, only 8 square feet of the 64 square feet of bearing surface had a footing. The damaged pier was repaired and given a firm footing of concrete.

150 feet south of the Chinese Garden foot bridge, the 12-foot bank was washed to the road grade. Another log crib was constructed 35 feet long, with the same section dimensions as the one above. Also a crib 4 feet high of logs and 40 feet long was placed parallel to the washed bank to retain the dirt fill to be made later, and to prevent further wash.

The log crib on the east entrance road, at Elk Fork, was commenced May 3rd and completed the 27th. The crib is 180 feet long, 4½ feet high, and the inside width will vary from 6½ to 7 feet in the clear. It is rock filled and has a log bottom to retain the fill. The crib is rather long and is designed not as a unit, but made up of independent units, each unit of which is free to dip or sink so as to fill the underscour. This feature of the crib is quite different than the rest of the cribs in the park; it is more flexible and will not bridge the holes caused by the underscour.

(b) Maintenance and Repair of Physical Improvements.

The work of discing, seeding and harrowing in the grass seed at the 45½-acre field near the northern entrance was completed, the irrigation ditches cleared out and laterals made. The man and 4-horse team engaged in this work then moved to Slough Creek, where he is to clear and irrigate natural meadows for raising hay there for elk and the tame buffalo herd. He arrived at Slough Creek on May 22nd, and has since cleared up around the premises, and repaired the roofs to the cabin and log stables there. The ditches were cleaned out and the work of irrigation begun at the Buffalo Farm, on Rose Creek.

Repairs were made to the high wire fence around the buffalo pasture at Headquarters, by Rangers Lawson and Scoyen. Forty-two new posts were cut and set by these men.

Extensive repairs were also made on the north line fence west of Gardiner, by Rangers Pound, Reese, Dupuis, and McLaughlin, requiring quite a large number of new posts.

The plumber, assisted by Rangers Scoyen and Lawson, made extensive repairs to the water system which supplies the cabin 1 mile south from Headquarters, which is occupied by the ranger who looks after the show herd of buffalo during the summer season.

The road from Gardiner to Golden Gate and in the vicinity of Headquarters has been graded up, drained, and the side ditches cleaned. A large boulder 6 feet by 6 feet by 8 feet, that came down from the top of the Gardiner Canyon and lodged in a concrete culvert, was removed, but the broken head walls and the parapet wall have not been repaired.

Work on the excavation of the footing for the gas tank at Gardiner was commenced the last two days of the month. A repair crew of five men commenced repairs to the sprinkling system the 27th. All tanks between Gardiner and Golden Gate were repaired. All culverts from Gardiner to West Yellowstone, to Repler Cascades, Morris to Canyon, and from Mammoth to Tower Falls were inspected, cleaned out, and the side ditches repaired and the drains fixed. All bridges on the above roads have been inspected.

The snow crew, with caterpillar and snow-plow attachment, left Headquarters May 12th and arrived at the Lake May 27th. A distance of 49 miles was cleared of snow, which in places was 4 feet deep on the level, and some drifts were 12 feet deep. The plow attachment, constructed by the master mechanic, has had a severe test, and results show it to be a real success, which is contrary to the information furnished by the caterpillar people, who could not recommend a successful attachment.

Since the completion of the Elk Fork crib on May 27th, White's crew has made repairs to the road and bridges in the vicinity of Elk Fork. No progress report of this work has been received at this date.

(c) Miscellaneous Improvement work.

Operator Ramsey, of the Chester-Outing Moving Picture Company, who was out in the park with Assistant Chief Ranger Harry Trischman and Ranger Roy Frazier at the end of the month of April, returned to Mammoth on May 4th, and completed his work in the park shortly afterwards and left.

The work of the rangers of feeding hay to elk herds was completed on the 5th of May, as was also the work of feeding hay to our herd of surplus horses. Grazing has since that time been sufficient for both elk and horses.

The buffalo herd which had been held and fed hay at Headquarters, was also put on grass on the 2nd and no more hay has been fed them.

(d) Service to the Public.

The Chief Ranger's report inclosed shows a total of 23 visitors to the park during the month. These were mostly people who happened to come to Gardiner on business and came as far as Mammoth Hot Springs and back to Gardiner the same day.

There were no accommodations available at the hotels or camps during the month. The Transportation Company furnished transportation to such as wanted to come to Headquarters, via their mail stage line between Gardiner and Mammoth.

IV. WORK IN PROGRESS.

(a) Construction of Physical Improvements.

No construction work was in progress by this office at the close of May.

(b) Maintenance and Repair of Physical Improvements.

Our shop force was engaged throughout the month in repairing tools and equipment, overhauling motor vehicles, including motorcycles, with a view to having most of them in excellent condition for the opening of the working season, and keeping those in use in repair. ✓

The plumber was busy keeping up the water and sewer systems, and preparing for construction work to be accomplished later at the automobile camps throughout the park. ✓

The painter finished painting a Ford car he had in the shop, and made and painted road and other signs for use in the park, and renovated employees' quarters at Mammoth. ✓

The hydro-electric power plant was run daily, except Sundays, from 5.00 A. M. to midnight, and produced during the month a total of 8060 kilowatt hours of current. Of this, 1261 K. W. hours were consumed by concessioners, and 6799 K. W. hours were consumed by our shops, grounds, public buildings, and employees. The peak load for the month was 36 K. W. ✓ *24 hrs a day beginning 6/16*

The three electricians, in addition to running the hydro-electric power plant, made necessary changes and repairs to lines in shops, employees quarters, and other buildings at Headquarters. ✓

The maintenance work in connection with raising of hay for wild animals and tame buffalo, is in progress at the Buffalo Farm on Rose Creek, at Slough Creek, and on the field at Gardiner. This work at present consists chiefly of irrigating the fields and clearing off rocks and other debris, preparatory to cutting the hay. ✓

(c) Miscellaneous Improvement Work.

Improvements by concessioners: The Yellowstone Park Transportation Company kept its large shop force busy throughout the month overhauling its large fleet of motor vehicles, preparatory to handling the expected heavy travel. Several carpenters are also at work remodeling the lower part of the bunk house at Mammoth, formerly used for storing coaches, into additional rooms for employees, thus devoting the whole building to this purpose. ✓

The Yellowstone Park Hotel Company have two Chinamen engaged in raising garden truck on their site on Gardiner River, and are daily receiving large quantities of supplies for the coming season, which are being hauled from the railroad to their storehouse at Mammoth and to the various hotels in the park. ✓

The Yellowstone Park Camps Company is making excellent progress in its construction work at Mammoth, and will have the new tents ready for occupancy by the opening of the season. The work on the new concrete plunge at Mammoth is also making good progress, and will be ready to use before the end of June. The construction work at Camp Roosevelt (near Tower Falls) is also in progress, having been resumed about the middle of April. As soon ✓

as the roads were opened, this company also began the work of rebuilding Lake Camp, which has not been occupied for the past two years, and this, and the work of preparing the camps at Canyon and Upper Basin for tourists, is in progress.

J. E. Haynes' work of constructing a new picture shop on the site adjoining his present residence at Mammoth has been in progress since May 4th, and is well advanced.

Mr. C. A. Hamilton is clearing up the grounds and making usual preparations for opening his store at Upper Basin. He is also preparing to resume operations at his Lake store.

Curio Store concessioners Pryor & Trischman are still engaged in making alterations to their building at Mammoth, painting inside and out, and giving their premises a general renovating.

V. WORK BEGUN:

No new projects were begun during the month, except as referred to as finished or in progress in preceding paragraphs.

VI. PLANS OR PROPOSED WORK:

It is proposed to make all light repairs to roads and bridges, such as the funds will permit. These repairs will be delayed until about June 15, as the work will have to be done again if a rain should happen before the tourist season begins.

It is proposed to have the automobile camp at the Canyon in shape for tourists by June 20th, - to have water piped to the camp grounds and sanitary arrangements made.

Snow will have to be removed from the road at Sylvan Pass and also Dunraven Pass, but no trouble is expected from snow on the other roads.

The gas tank at Gardiner will be completed this month.

It is very possible that sprinkling between Gardiner and the Upper Basin will be commenced before July 1st, if the funds will permit; at the present time the dust is giving some trouble.

One or two men must be employed at Headquarters by the

day, to irrigate the grounds, mow and care for the lawns and keep them in order.

All work in progress shown under IV is to be kept up to completion.

The tame show herd of buffalo, of about 15 animals, is to be brought in to Mammoth where they can be viewed by tourists.

The telephone lines must all be gone over and repairs made, so they will be in good working condition for the tourist season.

About 32 temporary rangers are to report for summer duty during June, receive instructions, and be distributed to their various stations for summer work of road patrols, patrols over formations, checking automobiles, etc. Rearrangement of stations and permanent rangers to suit summer conditions, is also to be made.

Plans must be made for assembling of crews for maintenance of roads, sprinkling, etc., as soon as possible after July 1st, and also for purchase of supplies for the next fiscal year.

All concessioners will make preparations during the early part of June to receive the heavy travel expected at the opening of the park season, June 20th.

A general reorganization of our forces with a readjustment of division of duties will be put into effect during the month of June.

VII. POLICIES.

No new policies were adopted during the month.

The policy of permitting the grazing of cattle in the park, for supplying fresh meat to the concessioners and government messes, which has always been in effect but which has not been in practice for several years, because the contractor found it more expedient to do his slaughtering outside, has been revived, and is under consideration. This will probably be settled during the month of June.

VIII. COST OF OPERATION.

The cost report for the month of May is inclosed.

IX. OTHER MATTERS OF INTEREST.

Wild animals.

Although the weather conditions were colder than usual, the growing conditions were fairly good, and there was enough grass by May 5th so that it was no longer necessary to feed hay to the wild animals, and the surplus horses and the tame herd of buffalo were also turned out on grass on this date. This was a great relief from the conditions that had prevailed all winter and late into spring, due to the shortage and high price of hay, and lack of the usual forage on the range. The 100 tons of hay purchased with the \$4703 donated by private subscription just lasted through, and served to save many thousands of the elk which were not strong enough to get through the last few hard weeks of winter without being fed. Since the grass has become plentiful, the number of wild animals that have died are few, and those reported as being found in May were mostly some that died previously and were not found until later. While the losses have been considerable, they were not as bad as feared, and we still have a goodly number of elk, deer, and antelope in the northern herds.

Buffalo, tame herd: The report for April gives the number in this herd at 432, including new calves. One bull was killed at Mammoth in the corral by another bull on April 19th, and was not reported, therefore, the number should have been given as 431. Twenty-two calves were born in the herd during May, making the total number of calves to date 48, and the total number of animals in the herd at the end of May, 453. The whole herd is now located on the range in the vicinity of the ranch on Rose Creek, but a small show herd will be brought in to Mammoth during June, and three bulls will probably be shipped during the month. The animals were thin in flesh at the beginning of May, due to their rather short ration of hay during the winter, but since plenty of grass is available, they are picking up rapidly and are now looking well.

Buffalo, wild herd: No reports were received of the wild herd of buffalo during May.

Bears: While the bears have come out from their winter quarters, and many signs have been reported, but few of them have been seen, as there are so many carcasses of elk that died during the winter that they can feed upon, they have not come around the quarters at Mammoth. Hunters near the park lines have been

fairly successful in securing bear this spring.

Antelope: Ranger McLaughlin, who made patrols from Gardiner Station, reports having seen 148 antelope during the month, and that they were now in good condition. Buffalo Keeper Lacombe reported about as many more on the range north of Yellowstone River, seen while he was rounding up buffalo. These reports indicate that there are at least 300 antelope in the park, and is most encouraging after the past hard winter.

Deer: Quite a number of blacktailed deer, and a few of the whitetailed variety, still remain around Headquarters, and these, as well as those reported in the higher altitudes, are gaining in flesh and recovering from the strain of the long winter. Thirty-three dead blacktailed deer were reported as having been found, but these are some that died earlier in the spring. The loss during the month of May was slight.

Elk: The elk that survived the hard winter improved in flesh wonderfully during the month of May, and are now looking well and no more are dying, as they have an abundance of feed. Most of the larger herds have gone back towards the summer ranges, but there are still a few hundred within a few miles of Headquarters, and a small band still hangs around close to the buildings and may be seen every day feeding upon our lawns. There were 284 carcasses found by Ranger Anderson on his patrols along the north line east of Gardiner, but these died mostly in March and April. Conservative estimates place the number of elk remaining in the northern herd, including those on the Madison River and on the West Gallatin, at around 11,000, and I am reliably informed that about 13,000 of the southern herd, which wintered in Jackson Hole, survived the hard winter. Eighty elk, including 79 cows and 1 bull, wintered around the warm springs in the vicinity of Norris Basin, and two or three hundred wintered along the Firehole River, from Upper Basin to the west entrance. There were but few deaths among these two small herds.

We are very fortunate to have so many elk left after one of the most perilous winters that they have ever had to contend with, and had it not been for the fact that we were able to procure large quantities of forage for them during the winter and late into the spring, the results of the long hard winter would have been most disastrous.

Mountain Sheep: A few mountain sheep died during the trying spring months of April and May, but the loss was small as compared with the elk and deer, and those seen recently are in fine condition.

Moose: Assistant Chief Ranger Brooks spent the first twenty days of May in the southeastern corner of the park, where he saw 95 moose, of which 81 were grown and 14 were last year's calves, inside of the park, and 49 more near the park in the Upper Yellowstone country, of which 41 were grown and 8 calves. He found nine dead moose in all. He reports that the moose in that country were in a rather weak condition from lack of forage, due to deep snow and severe winter. Also that he did not begin to cover the country thoroughly, as the traveling was very difficult, due to soft, deep snow, and also to the fact that he found it inadvisable to disturb the moose in their weakened condition, as they were likely to get into deep snow and get down where they could not get up again.

Carnivora: One badger and forty-one coyotes were reported killed during the month, but due to the lateness of the season, the pelts are of but little value. No reports were received of mountain lions or wolves during the month.

Grazing: About May 5th the grass had gotten such a start that the wild animals as well as the tame buffalo and the horse herd were able to get all the subsistence necessary without further feeding of hay. It grew plentifully throughout the month, and all of the animals are getting all they want with but little effort now, and besides there is a good growth on the range along the north line that will cure on the stalk later in the summer for next winter's supply.

*To go with cows
over to camp
17*
The Yellowstone Park Camps Company had 33 horses in the park during May, and the Yellowstone Park Transportation Company 23, most of these on grass in the vicinity of Headquarters. And also we have had an average of about 30 of our surplus saddle, pack and team horses on grass during May, taking them up as they were wanted for work.

Mr. Walter Hill, who bought the Van Dyck property in Gardiner and the Upper Yellowstone Valley, and his assistant, Mr. Bodine, called at my office May 26th to discuss the desirability of reestablishing the practice which was abandoned in 1916 of grazing the beef cattle needed for supplying the hotels and camps in the park. This request was disapproved by your letter of May

21st, (in the case of the Yellowstone Park Hotel Company,) but they have reopened the case on the grounds that it is necessary on account of increased travel, and further decision is yet to be made.

Birds.

Summer birds are much in evidence throughout the park.

Park Ranger Anderson reports that grouse are more numerous than usual in the country he is patrolling, near the north line of the park, east of Gardiner.

Further details, relative to birds, as observed by Park Naturalist Skinner, are given in another portion of this report, under the heading of "Seasonal Changes."

An interesting side-development of the work with the elk was the observance by Naturalist Skinner of many birds on the feeding and bedding grounds below Mammoth. The birds were nutcrackers, magpies, crows, and Brewer blackbirds. Their abundance reached its highest point about April first. The birds were feeding and it was believed that they were feeding on ticks which also were most abundant about April first. A specimen of nutcracker was collected and stomach examined and parts of several ticks were found therein.

It was proved then that this bird was destructive to ticks. Since our tick problem is a serious one, it is believed that this preliminary data is valuable enough to warrant a more extended examination next season.

The time these birds ate ticks apparently extended over the latter half of March, all of April, and the fore part of May.

Fishes.

Most of the streams of the park were high and the water was muddy, due to melting snow, therefore fishing was not good.

Seasonal Changes.

Botanical:

At the altitude of Mammoth the following flowers began to bloom: 13th, Dandelions; 15th, Yellow Bell; 17th, Pasque flower; 19th, Phlox; 21st, Wild clover; 21st, Shooting star; 23rd, Wild strawberry; 24th, Larkspur; 26th, Dwarf sunflower and Spring beauty.

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"Pussies" appeared on willows on the 9th near Mammoth at 6400 ft., and on the 31st at Lake Yellowstone at 7750 ft. In general, vegetation at an altitude of 7500 ft. on May 31st, was at the same stage as it was at 6500 ft. on May 13th.

Birds:

The miterackers that had been so numerous all winter about Mammoth had practically all left for higher altitudes by the 4th.

Migratory birds arrived: 5th, Audubon warbler and Wright flycatcher; 8th, Tree swallow, Say phoebe, Western vesper sparrow, and Mourning dove; 9th, White-crowned sparrow; 13th, Chipping sparrow and Kingbird; 15th, Green-tailed towhee; 17th, Cowbird; 18th, Spotted sandpiper and Wilson phalarope; 20th, White pelican; 21st, Sandhill crane; 26th, Cliff swallow and Yellow warbler; 30th, Catbird; 31st, Audubon hermit thrush.

First eggs observed: 16th, Osprey in Gardiner Canyon at 5600 ft. and about the same date in Yellowstone Canyon at 7200 ft.; 21st, Killdeer plover; 28th, Robin.

Animals:

Elk: 4th, last one seen with old horns and on the same date another elk had new horns five inches long. 11th, last observed death of winter-killed elk. 15th, began to improve in flesh although it was evident a week earlier that the remaining elk were improving in health and strength. 23rd, elk began changing to summer pelage. At the end of the month new horns were three inches long on the

(Animals continued):

yearlings to fifteen inches long on the healthiest of the large bulls. No calves seen before the end of the month.

Mule deer: On the 16th I noted that where the hair had been scraped off earlier, the red pelage of summer was appearing; 24th, the red pelage was showing through the old hair; at the end of the month about half the deer were showing the red, summer pelage. At the end of the month, the growing horns were from three to eleven inches in length, depending on the age and condition of the animal.

Mountain sheep: On the 21st there were fifteen sheep on the bench east of Gardiner Canyon. These decreased to one on the 30th and that one left before the end of the month.

Miscellaneous: Woodchucks and ground squirrels were out on Swan Lake Basin (7300 ft.) on the 9th; 10th, jack rabbits had completely changed to summer pelage; 31st, the first mantled ground squirrel seen at 8000 ft. elevation.

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Some of these seasonal changes were late, especially early in the month; but after May 15th, seasonal changes were often earlier than usual. Reckoning from these data, the season is today four days later than the average.

It is to be noted that the seasonal changes of flowers and animals, etc., do not depend on the depth of last winter's snow still remaining, for that is fully three weeks late in going off the park plateau.

Arrests and violations of law.

No violations of law were reported, nor were any arrests made, during the month.

Rangers Reese and McLaughlin on one of their patrols to Reese Creek near the park line west of Gardiner, observed two men engaged in skinning a freshly killed bear, in the game preserve outside of the park, and reported the facts. A letter was written to the State Game Warden of Montana in regard to this illegal hunting in the game preserve, but in the meantime the parties made complaint against themselves before the deputy game warden

in Livingston and paid their fine and were also made to forfeit the bear trophies.

Forest Fires.

There is no danger of forest fires in the park while everything is in its present wet condition.

Accidents and Casualties.

None reported during the month except a slight injury to a blacksmith's helper, who cut his hand on the emery wheel.

Natural Phenomena.

A few changes have been noted in the natural phenomena this spring. Old Faithful Geyser seems to be playing oftener than it did last season, but this will be reported more minutely next month, after more careful observations have been made. The Constant Geyser at Norris Basin appears to have stopped playing, and the hot springs and small geysers in this basin do not appear quite as active as they were last year.

Special Visitors.

Doctor Saxton Pope, of San Francisco, California, and his friend, Mr. Young, arrived at the western entrance May 26th, to secure the family of four grizzly bears for the California Academy of Sciences, as authorized February 17th. As announced, these gentlemen were equipped with formidable looking bows and arrows with which they hope to kill the bears that are selected as specimens. Doctor Pope's brother, and friend, and their guide, Ned Frost, of Cody, arrived via the northern entrance on May 31st, and joined the party at Grand Canyon.

Mr. Clark, the new supervisor of the Gallatin National Forest, with Ranger McLain, of his force, called on May 18th.

Mr. H. W. Child, President of the Yellowstone Park Hotel Company and Yellowstone Park Transportation Company, visited the park May 6th and 7th.

Sergeant William R. Thompson, and three corporals, all of the U. S. Marine Corps, detached at Billings from the Roving Marine Traveling, Recruiting and Publicity party No. 3, May 2nd and 3rd, taking photographs, and viewing scenery in the vicinity of Mammoth.

Motion Pictures.

The only motion picture representative in the park during the month of May was Mr. J. A. Ramsey, representing C. L. Chester, of 120 West 41st Street, New York City, who came to the park March 12th and left May 9th. Every assistance practicable was given to Mr. Ramsey; his expenses were carried by this office while he was in the park, as per your instructions, and he reports that he secured excellent results.

Miscellaneous.

Entertainments: Free pictures were held in the Post Exchange auditorium weekly, under a cooperative arrangement between the park employees and residents of Gardiner, Montana.

Religious services were held in the Chapel on May 9th and 23rd, by Reverend J. F. Pritchard, Episcopal missionary from Montana.

X. RECEIPTS AND REMITTANCES.

The usual report of monies due, collected, and transmitted, on the regular blank forms, together with money orders, for \$4.05, is inclosed. Please acknowledge receipt.

Cordially yours,

HORACE H. ALBRIGHT

Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D. C.

Inclosures:

GAL:JMM

to Gardiner
Memorandum of Ranger operations during the month of May 1920.

Memo. to Mr. Lindsley:

1. The ~~monthly~~ temperature was uniformly low during the month, but no unusual extremes occurred. There was nearly 50% more precipitation during the month than for the average May. 3.2 inches of snow fell during the month of which two inches fell on the last day. The wind movement was about normal.

2. Ranger Townsend moved from Riverside Station to Norris Station on the 28th of the month.

✓ Mr. Hutchins moved to Slough Creek on the 22nd where he will take care of the hay fields and this years crop of hay.

Temporary Ranger Trip was relieved of his duties as ranger on the 18th and started as truck driver on the 19th.

✓ Assistant Chief Ranger Smith moved from Gardiner where he had been feeding hay to game to West Yellowstone where he will take care of the Western Section of the park.

Following is a list of men who were on leave during the month with inclusive dates of their leaves:

Name	From	To	Days
Scoyen <i>Noted Scoyen 1968</i>	4th	8th	5
Dustman	4th	6th	3
Dewing	17th	30th	12
Dustman	15th N.	15th	$\frac{1}{2}$
Lacombe (Buffalo Keeper)	26th	28th	3
McLaughlin	29th	31st	1
Bowman	24th	31st	6
Purdy	23rd	31st	7

3. The rangers at Gardiner stopped feeding elk on the Gardiner feed grounds on the 2nd of the month. Only a few bales of hay were fed the first two days of the month.

✓ The elk around the feeding grounds at Headquarters were fed for the last time on the 5th of the month. $7\frac{1}{2}$ tons of hay were fed the elk at Headquarters during the five days.

✓ The buffalo that had been held in at Headquarters on account of the shortage of feed at the buffalo farm were taken back to the farm on the 3rd. Two tons of hay were fed these ~~elk~~ during the first two days of the month.

✓ The herd of horses was turned out to pasture on the 5th of the month. $2\frac{1}{2}$ tons of hay were fed to the horse herd the first five days of the month. *+ noted March 11, 1968*

✓ Rangers Lawson and Scoyen cut, hauled and set 42 new posts for the fence at the buffalo corral near Headquarters. They worked four days helping to pipe water ~~the~~ to the cabin at the buffalo corral. *Scoyen 1968*

✓ During the month the rangers at Gardiner in their spare time built a fine new corral at the Gardiner Station.

✓ On the 4th rangers Trischman and Frazier returned from a trip to the Upper Basin and Canyon with Mr. Ramsey the moving picture man. This trip had been made on skis.

Brooks saw 5 moose in the park - 81 grown + 14 calves
dead ones, Natural death. He saw 49 moose outside park
41 grown + 8 calves, 3 dead ones May 20, mark but
dead moose.

Assistant Chief Ranger Trischman acted as property man and timekeeper with the snow crew from the 12th to the 28th.

* Assistant Chief Ranger Brooks was in the Upper Yellowstone country from the 1st to the 19th.

The other rangers made their regular patrols, cut next winters wood, cleaned their stations and station grounds, and other duties as ordered by the Chief Ranger.

The roof on the stable at the hay farm on Slough Creek was put on and general ~~and~~ clean up made around the farm during the last ten days of the month.

The cleaning of ditches and the starting of irrigation was accomplished at the hay fields at the Buffalo Farm during the month.

4. There is still a small band of elk around Headquarters. These animals can be seen feeding on the lawns in front of Headquarters daily, which is very unusual as all elk have ~~been~~ left this vicinity in former years. Many of the deer are still around Headquarters.

There have been 48 calves born in the tame herd of buffalo this spring. All buffalo are located near the buffalo farm at the end of the month.

While most of the bears are out few have been seen, for there are so many dead elk in the mountains they do not come near the hotels and camps for food. The bear were late in making their appearance this spring.

148 antelope were seen during the month by Ranger McLaughlin who reports them in good condition.

There are a few Blacktail and a few Whitetail deer still around headquarters and they are in good shape. Rangers report a good many deer near the park line in the park about five miles west of Gardiner, Montana.

Most of the elk have gone back in the hills and they are reported as doing fine and looking good.

Ranger Anderson reports that between the mouth of Bear Creek and Hellroaring Creek he counted during the month 211 dead elk, 5 dead buffalo, and 19 dead deer. In the Blacktail District he counted 73 dead elk, one dead buffalo, and 14 dead deer.

During the month the following hides and scalps were turned in:

Name	Coyotes	Badger
Anderson	one	one
	five scalps	
Winn	six	
Lacombe	five	

On account of the high and muddy condition of the streams in the park little fishing has been done and few fish have been taken.

Ranger Anderson reports that grouse are more numerous than in former years and that they run up into large numbers.

5. Rangers Reese and McLaughlin located two men hunting bear in the Gallatin Game Reserve within a short distance of the park line, but as they have no jurisdiction outside of the park no arrest followed. The facts were reported to the Chief Ranger's Office and a letter written to the State Game Warden of Montana. The guilty parties gave themselves up to a Deputy State Game Warden at Livingston, Montana, and they were fined \$25 and costs and made to forfeit the bear hide.

Yellowstone Park, Wyo., June 2, 1920.

Weather Conditions-- Mammoth Hot Springs.

M A Y , 1920.

Temperature: Monthly mean, 43.4° ; departure, -4.0° . The temperature was uniformly low throughout the month, but no unusual extremes occurred.

Precipitation: Total, 2.84; departure $+0.93$, or nearly 50% more than for the average May.

Snowfall: Total, 3.2 inches, which is ^{slightly} less than normal. Two inches of snow fell during the storm of the last day of the month. This amount of snow is unusual so late in the spring.

Wind: The wind movement was about normal. Maximum velocity, 36 miles from the southwest on the 25th.

Sunshine: Percentage of possible, 55; normal 53.

E. H. Fletcher,

Observer.

Monthly report of Electric Power Production. Month of May, 1922

kilowatt-hours produced at Power plant	8060
kilowatt-hours consumed by concessioners	1261
kilowatt-hours consumed by Dept. Interior and Exterior	6799
Peak load for month	36 KW.

Geo. J. Younger,
Electrician.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

June 1, 1920.

Preliminary REPORT on Tick destruction by birds.

To: Chester A. Lindsley, Asst. Supt.,

From: M.P. Skinner, Park Naturalist.

An interesting side-developement of the work with the elk was the observance of many birds on the feeding and bedding grounds below Mammoth. The birds were nutcrackers, magpies, crows, and Brewer blackbirds. Their abundance reached its highest point about April first. The birds were feeding and it was believed that they were feeding on ticks which also were most abundant about April first. A specimen of nutcracker was collected and stomach examined and parts of several ticks were found therein.

It was proved then that this bird was destructive to ticks. Since our tick problem is a serious one, it is believed that this preliminary data is valuable enough to warrant a more extended examination next season.

The time these ^{birds} ate ticks apparently extended over the latter half of March, all of April, and the fore part of May.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

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OF THE SUPERINTENDENT

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